

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Takeshi YOSHIDA, et al.

SERIAL NO: New Application

GAU:

FILED: Herewith

EXAMINER:

FOR: PROCESSING METHOD OF SEMICONDUCTOR SUBSTRATE

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

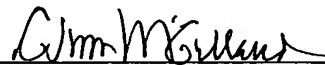
- ☐ Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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STATEMENT OF RELEVANCY

Reference AO (2002-189000) of Form PTO-1449:

In this invention, in a semiconductor device with an integrated circuit formed on a semiconductor substrate surface, a hemispherical convex is integrated into the semiconductor substrate to be formed in a part of a rear surface of the semiconductor substrate. In this case, the hemispherical convex may constitute a part of the hemisphere. The hemispherical convex serves as a semiconductor solid immersion lens for performing rear surface analysis of the integrated circuit. The semiconductor substrate and the semiconductor solid immersion lens are integrated into each other.

When forming the semiconductor hemisphere on the semiconductor substrate rear surface, initially, a grinding tool 3 with a semicircular slot 3a in cross section is pressed against a semiconductor substrate rear surface 1b. Then, the grinding tool 3 is rotated with the normal passing through the center of the slot 3a as an axis while the semiconductor substrate is ground by an abrasive (not shown) (See Fig. 3(a)). As a result, a convex semiconductor hemisphere 1c is formed along the semicircular slot 3a with the rotation axis as the center (See Fig. 3(b)).

Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

244702US2

SERIAL NO.

New Application

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Takeshi YOSHIDA, et al.

FILING DATE

Herewith

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AQ	2002-189000	07/05/02	Japan		X
	AP					
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	Stephen B. IPPOLITO, et al., "HIGH-RESOLUTION IC INSPECTION TECHNIQUE", Department of Electrical and Computer Engineering and the Photonics Center, Boston University, (12 pages)				
	AX	Stephen B. IPPOLITO, et al., "COMPARISON OF NUMERICAL APERTURE INCREASING LENS AND STANDARD SUBSURFACE MICROSCOPY", Depts. of Physics and Electrical and Computer Engineering and the Photonics Center, Boston University, (2 pages)				
	AY	Stephen B. IPPOLITO, et al., "HIGH RESOLUTION SUBSURFACE MICROSCOPY TECHNIQUE", Boston University Photonics Center, Depts. of Physics and Electrical and Computer Engineering, (2 pages)				
	AZ					<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.